

Application No.: 09/971,707  
Reply to Office Action of December 16, 2003

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Canceled).

Claim 2 (Currently Amended): The composite substrate of claim [[1]] 26, wherein said substrate is composed mainly of magnesia ( $\text{MgO}$ ), steatite ( $\text{MgO}\cdot\text{SiO}_2$ ) or forsterite ( $2\text{MgO}\cdot\text{SiO}_2$ ).

Claims 3-5 (Canceled).

Claim 6 (Currently Amended): The composite substrate of claim [[3]] 26, wherein said dielectric layer contains a vitreous component composed of silicon oxide ( $\text{SiO}_2$ ).

Claim 7 (Currently Amended): An EL device comprising at least a light emitting layer and a second electrode on the composite substrate of claim [[1]] 26.

Claim 8 (Original): The EL device of claim 7 further comprising a second insulator layer between the light emitting layer and the second electrode.

Claim 9 (Currently Amended): The composite substrate of claim [[1]] 26, wherein said dielectric layer is a sintered ceramic body composed mainly of barium titanate ( $\text{BaTiO}_3$ ).

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Claim 10 (Currently Amended): The composite substrate of claim [[1]] 26, wherein said substrate has a coefficient of thermal expansion of about 12 to 18 ppm/K.

Claim 11 (Previously Presented): The composite substrate of claim 2, wherein said substrate is composed mainly of magnesia.

Claim 12 (Currently Amended): The composite substrate of claim [[1]] 26, wherein the electrode comprises a metallic electrode selected from the group consisting of palladium, rhodium, iridium, rhenium, ruthenium, platinum, silver, gold, tantalum, nickel, chromium and titanium.

Claim 13 (Currently Amended): The composite substrate of claim [[1]] 26, wherein the electrode comprises a metallic electrode selected from the group consisting of Pd, Pt, Au, Ag and an alloy thereof.

Claim 14 (Previously Presented): The EL device of claim 7, wherein the second electrode is a transparent electrode of ITO or IZO.

Claim 15 (Previously Presented): The EL device of claim 14, wherein said ITO comprises a proportion of SnO<sub>2</sub> to In<sub>2</sub>O<sub>3</sub> of from 1 to 20% by weight.

Claim 16 (Previously Presented): The EL device of claim 14, wherein said IZO comprises a proportion of ZnO to In<sub>2</sub>O<sub>3</sub> of about 12 to 32% by weight.

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Claim 17 (Previously Presented): The EL device of claim 14, wherein the second electrode is silicon-based.

Claim 18 (Previously Presented): The EL device of claim 17, wherein the silicon-based electrode is selected from the group consisting of polycrystalline silicon (p-Si), amorphous silicon (a-Si) and single crystal silicon.

Claim 19 (Previously Presented): The EL device of claim 17, wherein said silicon-based electrode comprises a dopant to impart conductivity.

Claim 20 (Previously Presented): The EL device of claim 19, wherein said dopant is selected from the group consisting of B, P, As, Sb and Al in an amount of about 0.001 to 5 at.%.

Claim 21 (Previously Presented): The EL device of claim 14, wherein said second electrode has a resistivity of up to 1  $\Omega\cdot\text{cm}$ .

Claim 22 (Previously Presented): The EL device of claim 21, wherein said second electrode has a resistivity of from about 0.003 to 0.1  $\Omega\cdot\text{cm}$ .

Claim 23 (Previously Presented): The EL device of claim 7, wherein said light emitting layer comprises a phosphor.

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Claim 24 (Previously Presented): The EL device of claim 23, wherein said phosphor is a sulfide phosphor.

Claim 25 (Previously Presented): The EL device of claim 24, wherein said sulfide phosphor is a ZnS phosphor.

Claim 26 (New): A composite substrate in which an electrode and a dielectric layer are successively formed on an electrically insulating substrate,

said substrate having a coefficient of thermal expansion of 10 to 20 ppm/K,

wherein said dielectric layer is a sintered ceramic body composed mainly of barium titanate ( $\text{BaTiO}_3$ ), and

wherein said dielectric layer contains one or more oxides selected from the group consisting of manganese oxide ( $\text{MnO}$ ), magnesium oxide ( $\text{MgO}$ ), tungsten oxide ( $\text{WO}_3$ ), calcium oxide ( $\text{CaO}$ ), zirconium oxide ( $\text{ZrO}_2$ ), niobium oxide ( $\text{Nb}_2\text{O}_5$ ) and cobalt oxide ( $\text{Co}_2\text{O}_3$ ).

Claim 27 (New): A composite substrate in which an electrode and a dielectric layer are successively formed on an electrically insulating substrate,

said substrate having a coefficient of thermal expansion of 10 to 20 ppm/K,

wherein said dielectric layer is a sintered ceramic body composed mainly of barium titanate ( $\text{BaTiO}_3$ ), and

wherein said dielectric layer contains the oxides of one or more elements selected from the group consisting of rare earth elements Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

Claim 28 (New): An EL device comprising at least a light emitting layer and a second electrode on the composite substrate of claim 27.

Claim 29 (New): The EL device of claim 28 further comprising a second insulator layer between the light emitting layer and the second electrode.

Claim 30 (New): The composite substrate of claim 27, wherein said dielectric layer is a sintered ceramic body composed mainly of barium titanate ( $\text{BaTiO}_3$ ).

Claim 31 (New): The composite substrate of claim 27, wherein said substrate has a coefficient of thermal expansion of about 12 to 18 ppm/K.

Claim 32 (New): The composite substrate of claim 27, wherein the electrode comprises a metallic electrode selected from the group consisting of palladium, rhodium, iridium, rhenium, ruthenium, platinum, silver, gold, tantalum, nickel, chromium and titanium.

Claim 33 (New): The composite substrate of claim 27, wherein the electrode comprises a metallic electrode selected from the group consisting of Pd, Pt, Au, Ag and an alloy thereof.

Claim 34 (New): The EL device of claim 28, wherein the second electrode is a transparent electrode of ITO or IZO.

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Claim 35 (New): The EL device of claim 34, wherein said ITO comprises a proportion of SnO<sub>2</sub> to In<sub>2</sub>O<sub>3</sub> of from 1 to 20% by weight.

Claim 36 (New): The EL device of claim 34, wherein said IZO comprises a proportion of ZnO to In<sub>2</sub>O<sub>3</sub> of about 12 to 32% by weight.

Claim 37 (New): The EL device of claim 34, wherein the second electrode is silicon-based.

Claim 38 (New): The EL device of claim 37, wherein the silicon-based electrode is selected from the group consisting of polycrystalline silicon (p-Si), amorphous silicon (a-Si) and single crystal silicon.

Claim 39 (New): The EL device of claim 37, wherein said silicon-based electrode comprises a dopant to impart conductivity.

Claim 40 (New): The EL device of claim 39, wherein said dopant is selected from the group consisting of B, P, As, Sb and Al in an amount of about 0.001 to 5 at.%.

Claim 41 (New): The EL device of claim 34, wherein said second electrode has a resistivity of up to 1 Ω·cm.

Claim 42 (New): The EL device of claim 41, wherein said second electrode has a resistivity of from about 0.003 to 0.1 Ω·cm.

Claim 43 (New): The EL device of claim 28, wherein said light emitting layer comprises a phosphor.

Claim 44 (New): The EL device of claim 43, wherein said phosphor is a sulfide phosphor.

Claim 45 (New): The EL device of claim 44, wherein said sulfide phosphor is a ZnS phosphor.

Claim 46 (New): The composite substrate of claim 26, wherein said one or more oxides are present in an amount of up to 50 mol%, based on barium titanate ( $\text{BaTiO}_3$ ).

Claim 47 (New): The composite substrate of claim 26, wherein said one or more oxides are present in an amount of 0.004 to 40 mol%, based on barium titanate ( $\text{BaTiO}_3$ ).

Claim 48 (New): The composite substrate of claim 26, wherein said one or more oxides are present in an amount of 0.01 to 30 mol%, based on barium titanate ( $\text{BaTiO}_3$ ).

Claim 49 (New): The composite substrate of claim 27, wherein said oxides of one or more elements are present in an amount of up to 50 mol%, based on barium titanate ( $\text{BaTiO}_3$ ).

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Claim 50 (New): The composite substrate of claim 27, wherein said oxides of one or more elements are present in an amount of 0.004 to 40 mol%, based on barium titanate ( $\text{BaTiO}_3$ ).

Claim 51 (New): The composite substrate of claim 27, where said oxides of one or more elements are present in an amount of 0.01 to 30 mol%, based on barium titanate ( $\text{BaTiO}_3$ ).

Claim 52 (New): The composite substrate of claim 27, wherein said substrate is composed mainly of magnesia ( $\text{MgO}$ ), steatite ( $\text{MgO}\cdot\text{SiO}_2$ ) or forsterite ( $2\text{MgO}\cdot\text{SiO}_2$ ).

Claim 53 (New): The composite substrate of claim 27, wherein said substrate is composed mainly of magnesia.